

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 May 2004 (21.05.2004)

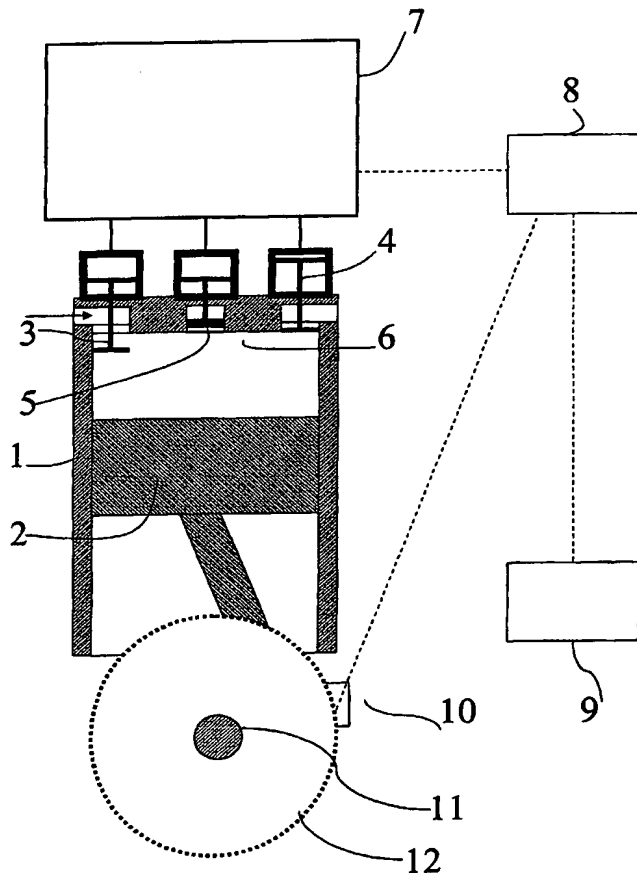
PCT

(10) International Publication Number
WO 2004/042216 A1

- (51) International Patent Classification⁷: **F02D 13/02**, 15/04, 17/00
- (21) International Application Number: PCT/SE2003/001670
- (22) International Filing Date: 29 October 2003 (29.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0203257-1 4 November 2002 (04.11.2002) SE
- (71) Applicant (for all designated States except US): **CARGINE ENGINEERING AB** [SE/SE]; Kompanigatan 10, 1 tr, S-254 38 Helsingborg (SE).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **HEDMAN, Mats** [SE/SE]; Båvensvik, S-640 34 Sparreholm (SE).
- (74) Agent: **DRLUDWIG BRANN PATENTBYRÅ AB**; Box 17192, S-104 62 Stockholm (SE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A FREQUENCY MODULATED VCR-ENGINE



(57) Abstract: A control method for the modulation of the torque of piston combustion engine that has a compression chamber (6) of variable volume and operable inlet valves (3). The torque requested for a predetermined operative condition is obtained through a selection of the volume of the compression chamber (6) combined with a selection of the time of opening and the time of closure of the inlet valves (3) combined with a selection of the frequency with which power strokes are performed.



Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.